



Unit 1

Scale Drawings



Lesson 2

Corresponding Parts and Scale Factors

Learning Goal

Let's describe features of
scaled copies.



Multiplying by a Unit Fraction

Warm-up: Number Talk

Find each product mentally.

$$\frac{1}{4} \cdot 32$$

$$(7.2) \cdot \frac{1}{9}$$

$$\frac{1}{4} \cdot (5.6)$$

Multiplying by a Unit Fraction



Warm-up: Number Talk

- Who can restate ___'s reasoning in a different way?
- Did anyone solve the problem the same way but would explain it differently?
- Did anyone solve the problem in a different way?
- Does anyone want to add on to _____'s strategy?
- Do you agree or disagree? Why?

Corresponding Parts

Notice and Wonder

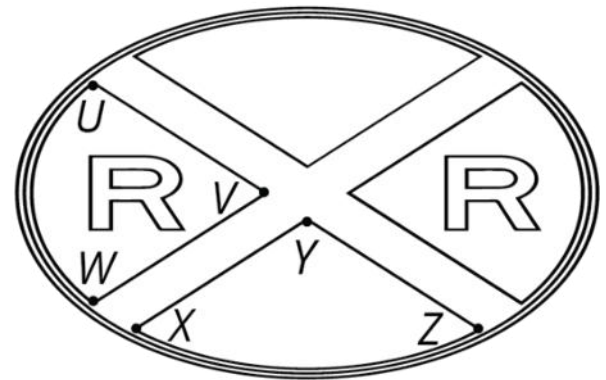
Here is a figure and two copies, each with some points labeled.



ORIGINAL



COPY 1



COPY 2

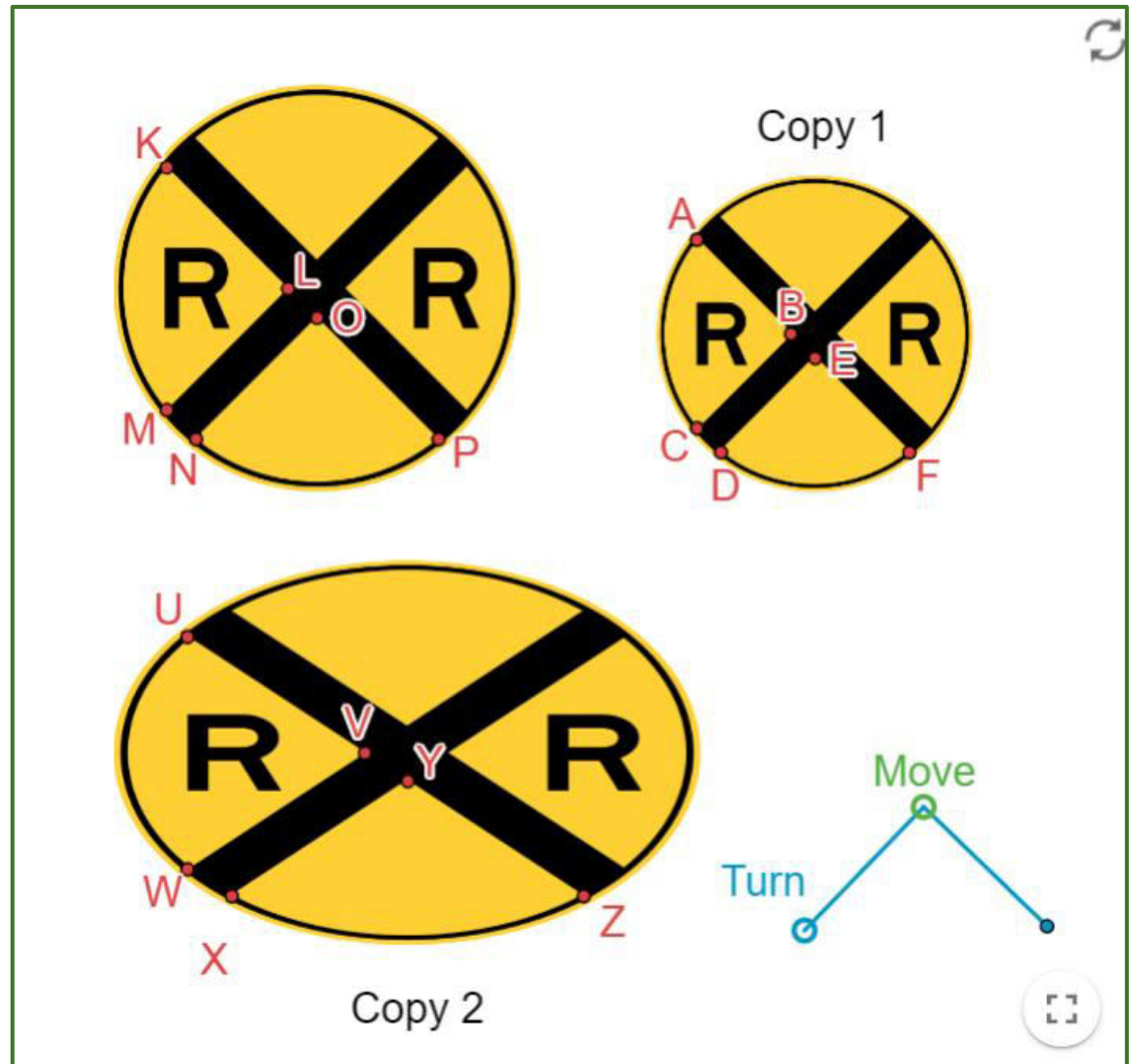
Notice and Wonder

1. Complete this table to show corresponding parts in the three pictures.

original	copy 1	copy 2
point P		
segment LM		
	segment EF	
		point W
angle KLM		
		angle XYZ

Notice and Wonder

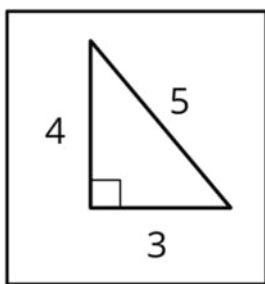
2. Is either copy a scaled copy of the original road sign?
Explain your reasoning.
3. Use your tools to compare angle KLM with its corresponding angles in Copy 1 and Copy 2.
What do you notice?
4. Use your tools to compare angle NOP with its corresponding angles in Copy 1 and Copy 2.
What do you notice?



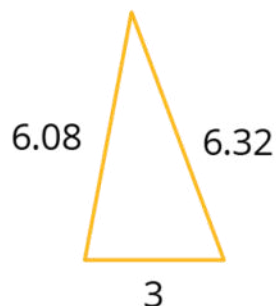
- In the scaled copy, Copy 1, did the size of any angle change compared to its corresponding angle in the original sign?
- In Copy 2, did the size of any angle change relative to its corresponding angle in the original sign? Which ones?
- What can you say about corresponding angles in two figures that are scaled copies of one another?
- What can you say about corresponding angles in two figures that are not scaled copies?

Here is Triangle O, followed by a number of other triangles.

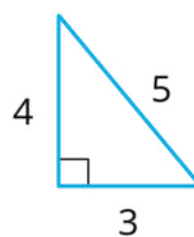
O



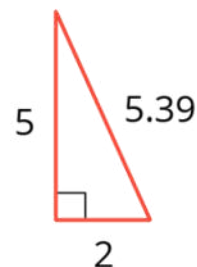
A



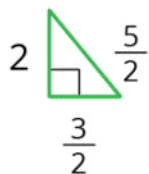
B



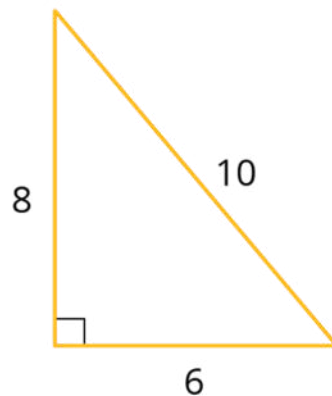
C



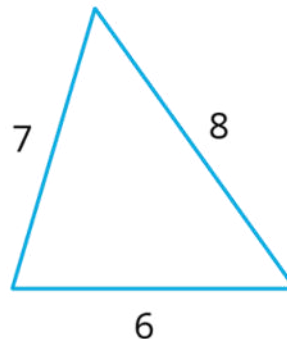
D



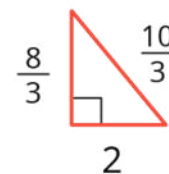
E



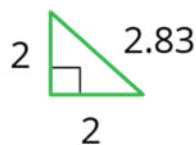
F



G



H



Your teacher will assign you two of the triangles to look at.

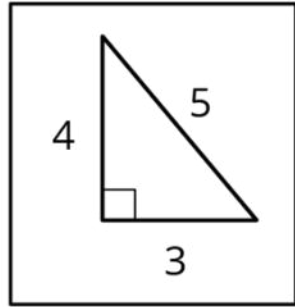
1. For each of your assigned triangles, is it a scaled copy of Triangle O? Be prepared to explain your reasoning.
2. As a group, identify all the scaled copies of Triangle O in the collection. Discuss your thinking. If you disagree, work to reach an agreement.
3. List all the triangles that are scaled copies in the table. Record the side lengths that correspond to the side lengths of Triangle O listed in each column.

Triangle O	3	4	5

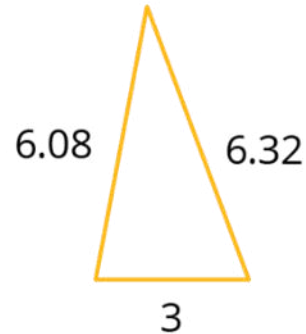
1. Explain or show how each copy has been scaled from the original (Triangle O).

Scaled Triangles

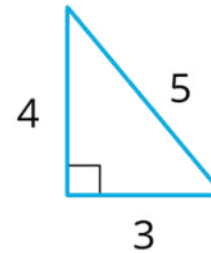
O



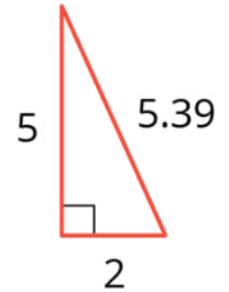
A



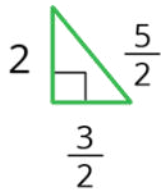
B



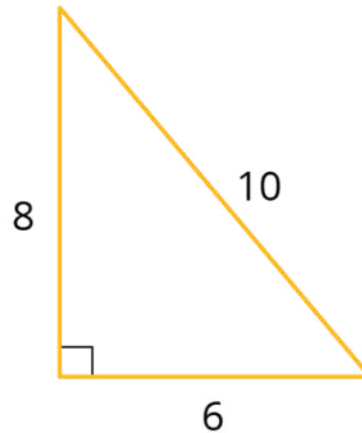
C



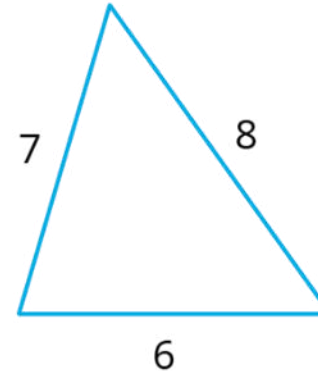
D



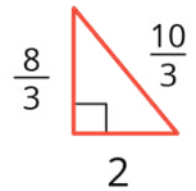
E



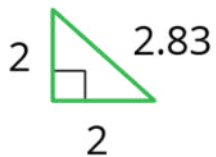
F



G



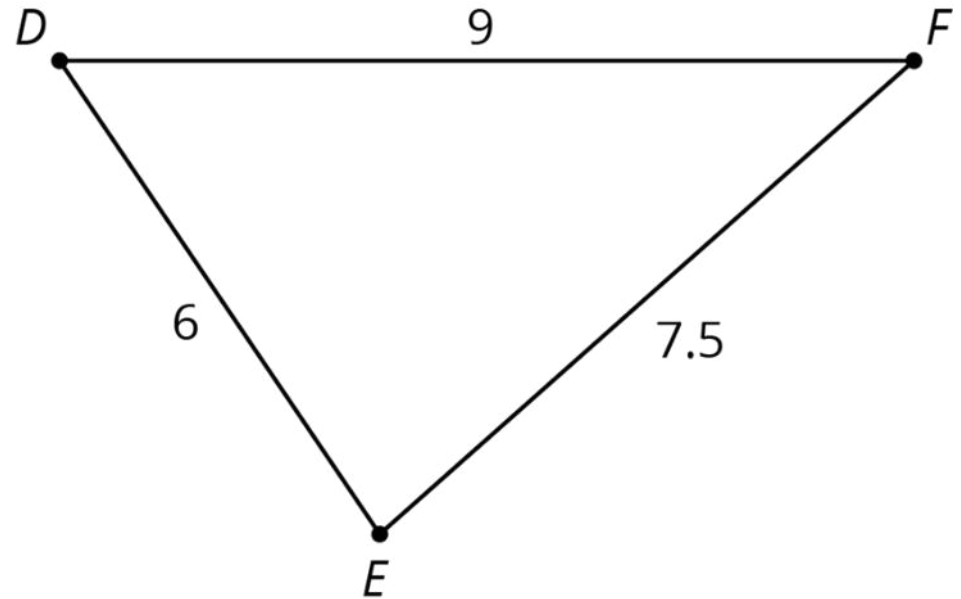
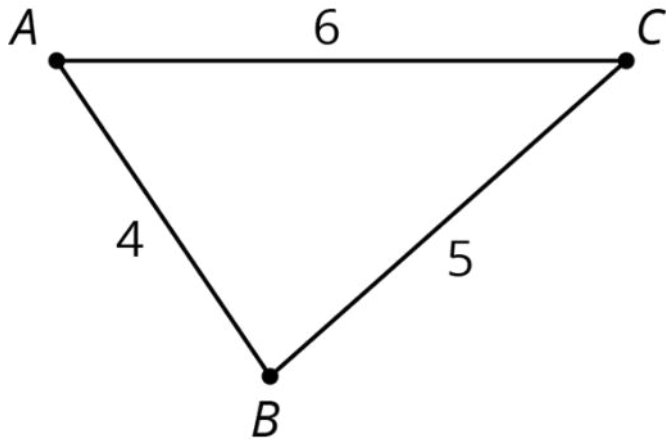
H



Triangle O	3	4	5
Triangle B	3	4	5
Triangle D	$\frac{3}{2}$	2	$\frac{5}{2}$
Triangle E	6	8	10
Triangle G	2	$\frac{8}{3}$	$\frac{10}{3}$

How would you describe how each triangle length was scaled from each triangle length of Triangle O?

- What do we mean by corresponding parts?
- What is a scale factor? How does it work?

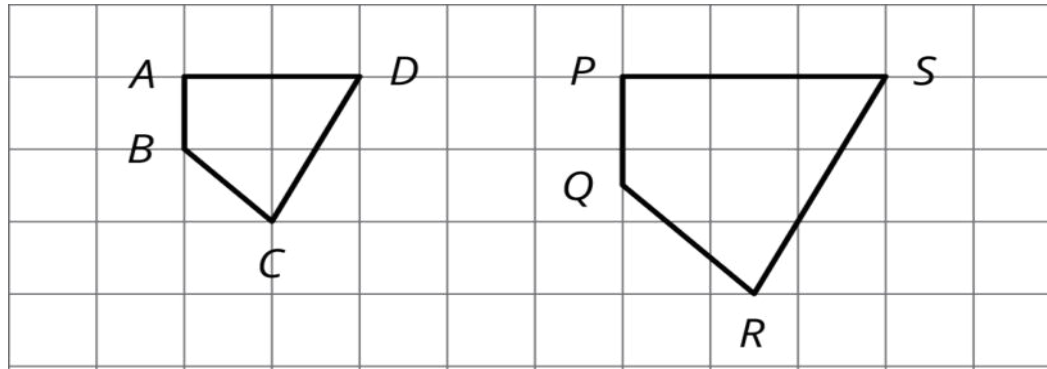


- I can describe what the scale factor has to do with a figure and its scaled copy.
- In a pair of figures, I can identify corresponding points, corresponding segments, and corresponding angles.

Learning Targets



Polygon $PQRS$ is a scaled copy of polygon $ABCD$.

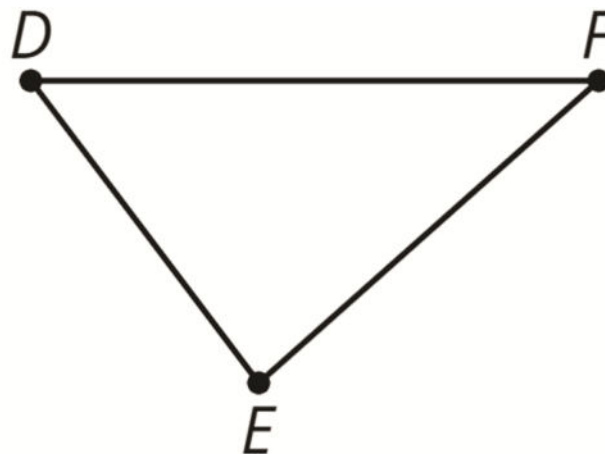
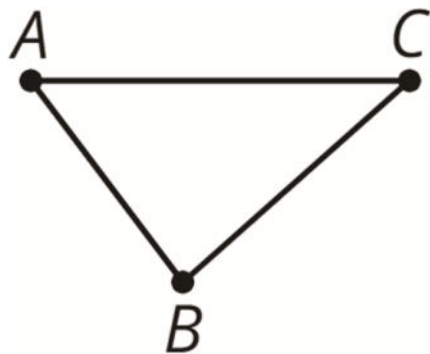


1. Name the angle in the scaled copy that corresponds to angle ABC .
2. Name the segment in the scaled copy that corresponds to segment AD .
3. What is the scale factor from polygon $ABCD$ to polygon $PQRS$?

corresponding

When part of an original figure matches up with part of a copy, we call them corresponding parts. These could be points, segments, angles, or distances.

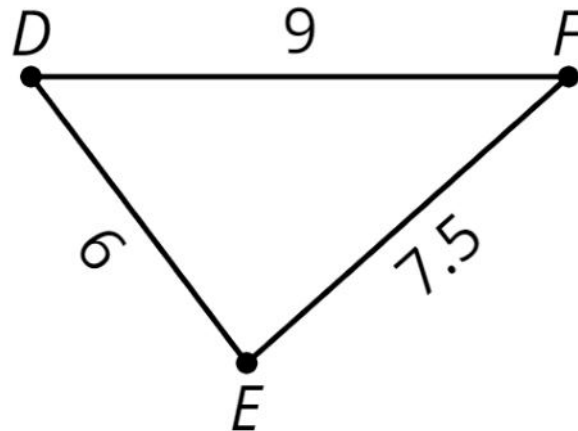
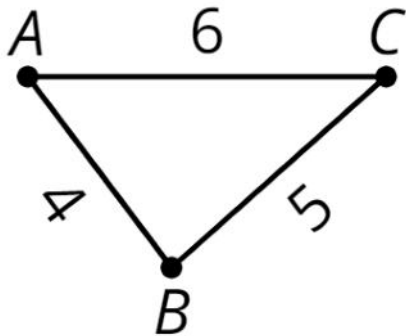
For example, point B in the first triangle corresponds to point E in the second triangle. Segment AC corresponds to segment DF .



scale factor

To create a scaled copy, we multiply all the lengths in the original figure by the same number. This number is called the scale factor.

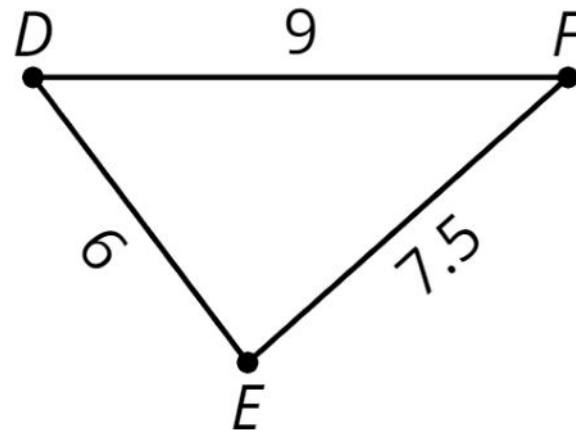
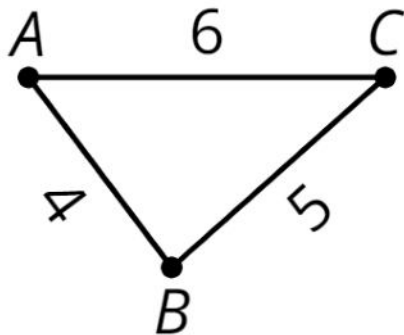
In this example, the scale factor is 1.5, because $4 \cdot (1.5) = 6$, $5 \cdot (1.5) = 7.5$ and $6 \cdot (1.5) = 9$.



scaled copy

A scaled copy is a copy of a figure where every length in the original figure is multiplied by the same number.

For example, triangle DEF is a scaled copy of triangle ABC . Each side length on triangle ABC was multiplied by 1.5 to get the corresponding side length on triangle DEF .



This slide deck is copyright 2020 by Kendall Hunt Publishing, <https://im.kendallhunt.com/>, and is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0), <https://creativecommons.org/licenses/by-nc/4.0/>.

All curriculum excerpts are under the following licenses:

IM 6–8 Math was originally developed by Open Up Resources and authored by Illustrative Mathematics, and is copyright 2017-2019 by Open Up Resources. It is licensed under the Creative Commons Attribution 4.0 International License (CC BY 4.0). OUR's 6–8 Math Curriculum is available at <https://openupresources.org/math-curriculum/>.

Adaptations and updates to IM 6–8 Math are copyright 2019 by Illustrative Mathematics, and are licensed under the Creative Commons Attribution 4.0 International License (CC BY 4.0).

Adaptations to add additional English language learner supports are copyright 2019 by Open Up Resources, and are licensed under the Creative Commons Attribution 4.0 International License (CC BY 4.0).

The Illustrative Mathematics name and logo are not subject to the Creative Commons license and may not be used without the prior and express written consent of Illustrative Mathematics.